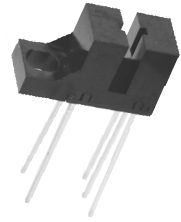


Photologic® Slotted Optical Switch

OPB120B



Features:

- Choice of output configuration
- Designed for printed circuit board mounting
- Opaque plastic housing
- Low profile
- 0.080" (2.03 mm) wide slot
- 0.275" (6.99 mm) lead spacing

Description:

The **OPB120B** consists of an infrared emitting diode and a Photologic® sensor (which is a monolithic integrated circuit that incorporates a voltage regulator, photodetector, linear amplifier and a Schmitt Trigger). The **OPB120B** has an LED and Photologic® sensor mounted on opposite sides of a 0.080" (2.03 mm) wide gap of an opaque housing. The OPB120B has a molded 0.040" (1.016 mm) wide aperture located over the emitter and 0.010" (0.254 mm) over the Photologic® sensor. This device has the added stability utilizing hysteresis built into the amplification circuitry.

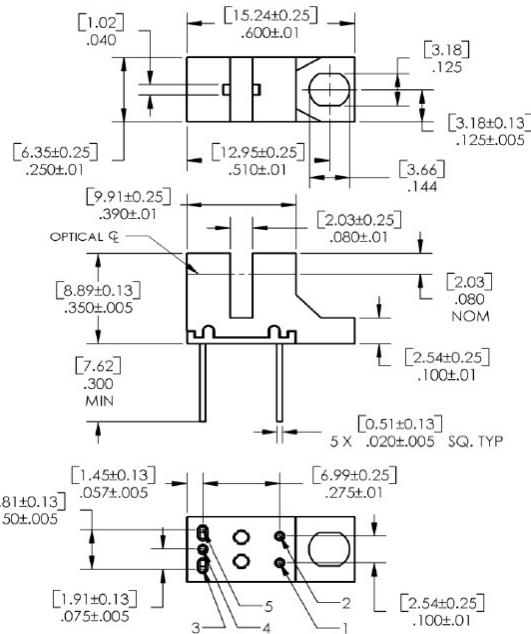
The electrical output is a buffered Totem-Pole.

Custom electrical, wire and cabling and connectors are available. Contact your local representative or OPTEK for more information.

Applications:

- Mechanical switch replacement
- Speed indication (tachometer)
- Mechanical limit indication
- Edge sensing
- Object sensing

Ordering Information		
Part Number	Sensor Photologic®	Aperture Emitter/Sensor
OPB120B	Totem-Pole	0.04" / 0.01"



Pin #	Description
1	Cathode
2	Anode
3	V _{CC}
4	Output
5	Ground

DIMENSIONS ARE IN [MILLIMETERS]
INCHES



RoHS

General Note

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Electrical Specifications

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted) ⁽²⁾

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	1.0	-	1.7	V	$I_F = 20\text{ mA}$, $T_A = 25^\circ\text{C}$
I_R	Reverse Current	-	-	100	μA	$V_R = 2\text{ V}$, $T_A = 25^\circ\text{C}$
Output Photologic® Sensor						
V_{CC}	Operating D.C. Supply Voltage	4.5	-	16	V	
$I_{CCL}^{(1)}$	Low Level Supply Current: Buffered Totem-Pole Output	-	-	15	mA	$V_{CC} = 16\text{ V}$, $I_F = 0\text{ mA}$
I_{CCH}	High Level Supply Current: Buffered Totem-Pole Output	-	-	15	mA	$V_{CC} = 16\text{ V}$, $I_F = 20\text{ mA}$
$V_{OL}^{(1)}$	Low Level Output Voltage: Buffered Totem-Pole Output	-	-	0.4	V	$V_{CC} = 4.5\text{ V}$, $I_{OL} = 16\text{ mA}$, $I_F = 0\text{ mA}$
V_{OH}	High Level Output Voltage: Buffered Totem-Pole Output	$V_{CC} - 2.1$	-	-	V	$V_{CC} = 4.5\text{ V}$, $I_{OH} = -800\text{ }\mu\text{A}$, $I_F = 20\text{ mA}$
$I_F(+)$	LED Positive-Going Threshold Current	-	-	20	mA	$V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$
$I_F(+)/I_F(-)$	Hysteresis	-	1.5	-	-	$V_{CC} = 5\text{ V}$

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted) ⁽²⁾

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
t_r, t_f	Output Rise Time, Output Fall Time	-	70	-	ns	$V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$ $I_F = 0\text{ or }20\text{ mA}$ $R_L = 8\text{ TTL Loads (Totem-Pole)}$
t_{PLH}, t_{PHL}	Propagation Delay Low-High & High-Low	-	5	-	μs	

Notes:

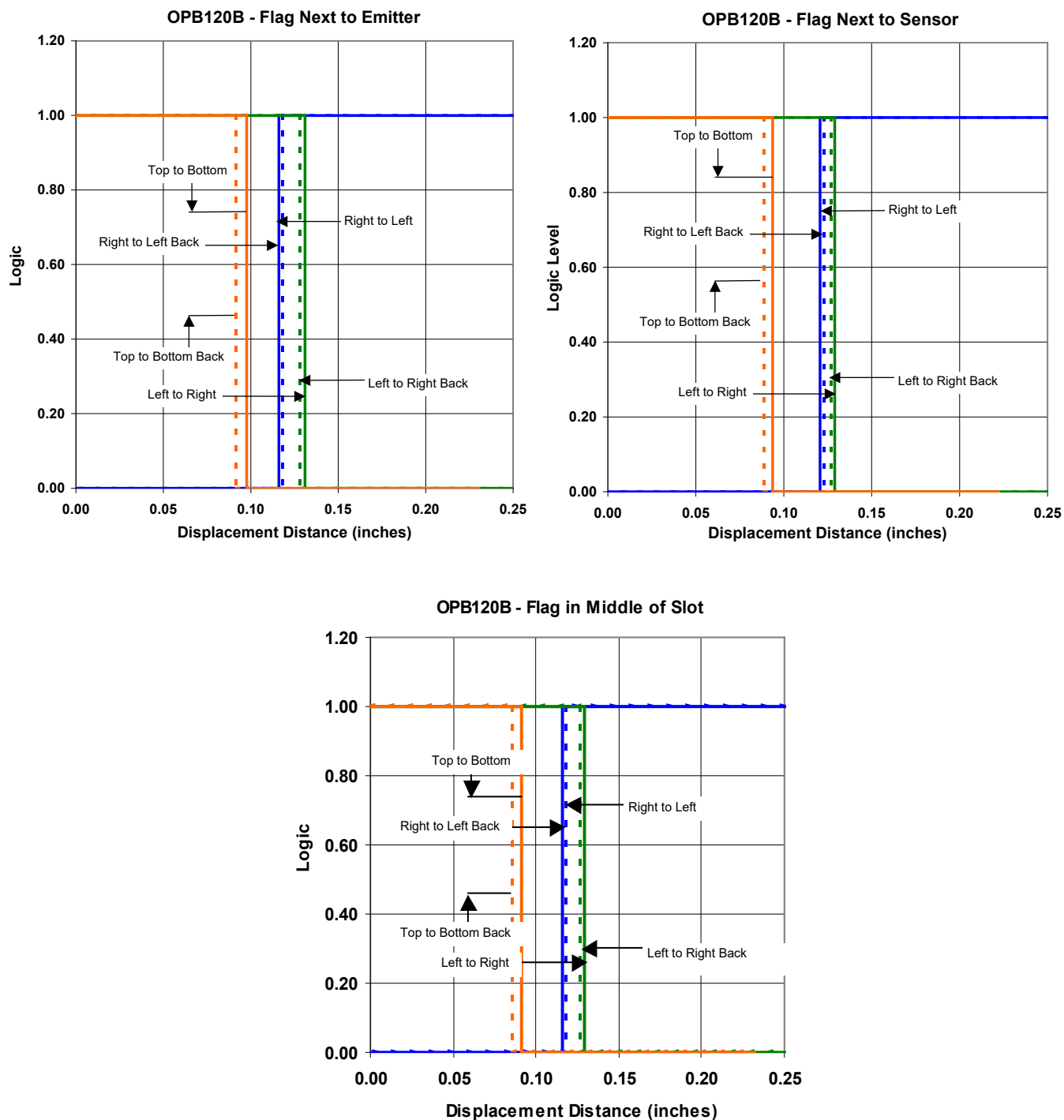
- (1) Normal application would be with light source blocked, simulated by $I_F = 00$.
- (2) All parameters tested using pulse technique.

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Typical Performance



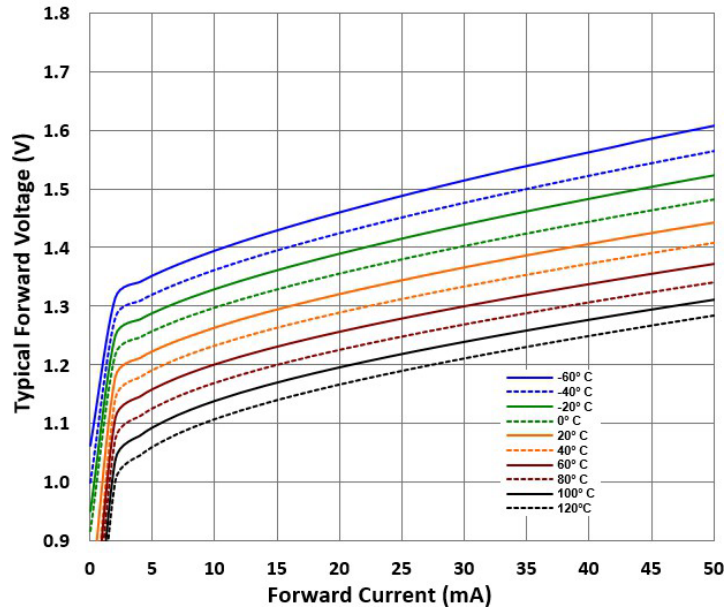
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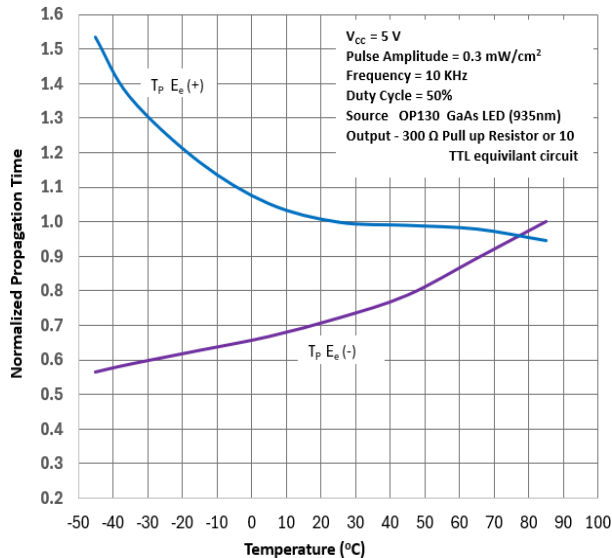
Typical Performance

890nm LED Forward Voltage vs I_F vs Temp

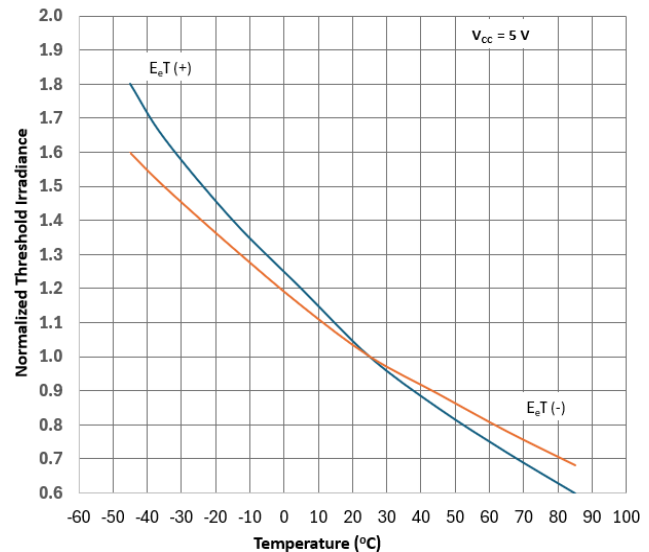


Sensor

Propagation Time vs Temperature



Normalized Threshold Irradiance vs T_A



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